(Continued from p. 86)

with cold-rolled prices of around $550/ton.

Ford, for the present, will not coat the outside surfaces of most of its exterior panels. That's because the galvanic coating hurts the appearance of the paint, say company officials.

Industry officials outside Ford, however, say that the No.2 automaker doesn't have enough proper welding equipment in place to handle two-side-coated exterior panels. Welding coated steels like hot-dip or EG requires direct welds, not series equipment used for uncoated steels.

Japanese Requirements

Of the three Japanese automakers in the US, Nissan and New United Motor Manufacturing, Inc. (NUMMI) already are using EG steel. Honda plans to convert from Zincrometal to EG for some outer panels later this year. Mazda plans to use EG steel at Flat Rock, MI. So does Toyota at Georgetown, KY.

Japanese EG steel typically has a lighter coating than American EG due to Japan's higher power costs.

The Japanese compensate for their lighter coatings with two basic tactics: They either paint an alloy-rich (usually zinc or iron) coating over the EG coating, or apply two electrogalvanic coatings.

Nissan's car and truck plant in Smyrna, TN uses the first method. The inside surface of Nissan's exterior panels has a zinc-rich paint over a nickel-zinc EG coating.

NUMMI takes the other approach. The Nova outer panels use a double-layered iron-zinc EG coating.

So far the five new American EG lines are not producing either the painted EG or the double-layered EG coatings. That's because they're making EG steel to the American automakers' specifications right now. But the new American lines can and probably will be converted to the Japanese-style specs in the next few years.

For now, Nissan and NUMMI are buying all their EG steel from Japan. Nissan claims that the quality of American steel is not good enough for exterior panels. It buys only unexposed steel from American steelmakers LTV and Armco.

NUMMI, which buys unexposed steel from LTV, is evaluating other American EG steel.

Honda is the only Japanese automaker in the US that's now using American steel for exposed panels. Unlike most American automakers, Honda requires its steel suppliers to submit a metallurgical test report with each coil of steel.

Later this year Honda will convert from Zincrometal to one-side EG steel for the outer panels of its hoods, trunk lids, and sides. Like Ford, Honda plans to use one-side EG steel for outer panels for the foreseeable future.

"One-side steel is better than two-side from the standpoint of stamping, welding, and painting," said Chris Poland, Honda's assistant manager of stamping.

Honda currently is testing one-side pure-zinc EG coils from Inland, Armco, and Bethlehem. But it's also looking at the painted EG and double-layered EG steels available from Japan.

Mazda will use Japanese-made EG steel for outer panels for two or three years after its US plant starts up in 1987. Sumitomo, Kawasaki, and Nippon will supply two-side zinc-nickel EG steel to the Flat Rock plant.

The LTV-Sumitomo Electrogalvanizing (LSE) Co. uses the same technology in Cleveland that Sumitomo has in Kashima, Japan. Right now LSE is dedicated mainly to GM and Ford. By 1989, however, LSE hopes to begin shipping zinc-nickel EG steel to Mazda, too, possibly using not only LTV but also Sumitomo cold-rolled steel as the substrate.

Toyota currently is searching for American steel suppliers for both exposed and unexposed panels for its Georgetown, KY plant. "We'd like to use steel coated on the new American EG lines if tests show it's good," said one Toyota purchasing executive. Toyota presently is testing the cold-rolled products of several American steelmakers.

The new wave of electrogalvanizing lines is the most exciting development in American automotive steels since the advent of high-strength steels. The big question is: Which team of auto and steel makers will be the first to achieve corrosion protection good enough for 5-10 year warranties? AT

How The EG Lines Work

The five new American electrogalvanizing (EG) lines use different technologies, but the same basic design: Individual cells in which electricity passes through metal anodes set in an electrolytic solution and through the coil of steel. The electricity sets up an electrical flow of positively charged zinc or other alloys to the negatively charged steel.

Only Double Eagle has an American design. National's line was designed by Nippon Kokan, 50% owner of National Steel. Sumitomo designed the LTV/Sumitomo line.

The Armco line and the Bethlehem/Inland/Pre Finish Metals line use the Gravitel technology of Austrian Andritz Ruthner.

The Double Eagle line uses the same USX Consumable-Anode, Radial, One-Side, Electrolytic (CAROSEL) design run at Gary, IN since 1977. The steel is held taut around a metal roll so that only one side of the strip is exposed to the electrolytic bath.

The other four lines expose both sides of the steel to the electrolyte at the same time. They can apply different coatings to the two sides by turning off the electricity on one side of the steel in some cells.

In the Gravitel technology, the electrolyte pours down like a waterfall through a V-shaped weir over the moving steel. In the Sumitomo technology, the electrolyte is pumped against the steel.